REMARKS

Applicant hereby requests the withdrawal of the rejections in the Final Office Action and reconsideration of the application, in view of the foregoing amendments and following remarks.

The present application contains claims 1 to 26.

Applicant has amended the independent claims 1, 22, 23, and 26 to provide proper antecedent basis and correct typographic errors. No new matter has been introduced by way of the amendment.

The Examiner rejected claims 1-6, 8-20 and 22-26 under U.S.C. 103 (a) as being unpatentable over Kuykendall (U.S. Publication No. 2002/0181044), hereinafter referred to as Kuykendall, in view of Adams (US Patent No. 6,785,472), hereinafter referred to as Adams.

Applicant respectfully traverses the rejection. The applied references fail to disclose or suggest the inventions defined by Applicant's claims, and provide no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

The present invention, as claimed by independent claims 1, 16, 22, and 23, is directed to a communication network or a method for operating thereof. The present invention as claimed includes for example following limitations which are unobvious over Kuykendall or Adams, taken singularly or in combination:

> "multiplexing of data packets [...] onto a sparse dense wavelength division multiplexed (S-DWDM) wavelength; the S-DWDM wavelength having a first separation being multiple of a second separation in a dense wavelength division multiplex (DWDM) wavelength plan used in a core network;

"a photonic switch [...] operable to consolidate the plurality of S-DWDM wavelengths into a DWDM signal for transmission "

The sparse DWDM as claimed in the present application, has been described, for examples, at page 42, line 12 to page 43, line 15; page 62, line 4 to page 64, line 23 and in Figure 10, 11. "Sparse-DWDM is so-called because, although the carrier wavelengths are relatively coarsely spaced in the access plant, they are generated with an optical precision, especially with regards to optical carrier frequency, so they can map straight across into the tight optical frequency constraints of the DWDM network." (page 21, lines 2 to 6). "The core node 16 and access multiplexers 12 are provided with multiple wavelength arrays of optical carrier sources, the outputs of which, though grouped in groups matching the S-DWDM wavelength allocation, are generated with enough precision in a centralized multi-lambda generator [...] to permit the concatenation of, or more accurately the interleaving of a S-DWDM signals to flow directly into the DWDM core-network side ports on the edge photonic switch 14" (page 42, lines 12 to 18). "[...] the optical carriers all have to be generated with DWDM-compatible wavelength precision. The wavelengths returned from the access plant have to be DWDM compatible." (page 43, lines 5 to 7). The mapping of S-DWDM into the passbands of DWDM "requires accurate wavelength sources so that each wavelength, [...] is in the approximate center of its respective passband, [...] thereby preventing undue attenuation by a wavelength filters and providing sufficient guard bands between the wavelengths." (page 62, line28 to page 63, line 2).

The advantages of mapping DWDM into multiple S-DWDM have been described as, for example: "to taper the per fiber capacity to a scaling more appropriate for the access, where a lower aggregate capacity may be required. The level of S-DWDM scaling can be adjusted to match the needs of the outside plant [...]. The S-DWDM/DWDM approach allows one DWDM fiber to feed multiple fully load fed access fibers, providing a fiber consolidation function [...]. In addition for sub-populated S-DWDM feeds (dark access wavelengths) the photonic switch can be used to provide further concentration, across the entire S-DWDM access/DWDM trunk resources."(page 63, lines 4 to 22); and "to provide low cost, non temperature-controlled components in the access plant. [...] Because the optical carrier entering

the network has to be very precise in optical frequency in order to pass through the optical switch and align (in the frequency domain) with the trunk-side DWDM filters, [...] the requirement for that carrier to be generated in the outside plant and/or customer premises can be eliminated, by the simple process of generating that optical carrier at a benign environment central location, in this case the edge photonic switch, and then distributing it out to the required customer premises or outside plant access multiplexer." (page 63, line 24 to page 64, line 10).

Therefore, the Examiner's statement that "this method of multiplexing signals is well know in the art and commonly referred to as coarse WDM or (C-WDM)" is not correct. S-DWDM is unrelated to C-WDM. CWDM has, for example, much broader channel spacing then DWDM (see, for example, http://www.fiber-optics.info/articles/cwdm.htm). A person skilled in the art would readily understand that CDWM cannot be multiplexed into a DWDM signal without an electrical-optical-electrical (O-E-O) conversion as the S-DWDM of the present invention.

The photonic switch of the present invention operates in optical domain, without the cost burden of O-E-O conversion. "Referring to FIG. 8a there is graphically illustrated the communications layers corresponding to a path through the network of FIG. 8 from access to core node. As can be seen from the graph of FIG. 8a, other than the Ethernet access portion, the entire traverse from access to core is in the optical domain. The transitions within the optical domain between λ, S-DWDM and DWDM are all effected using passive optical multiplexers and demultiplexers with amplification on a per wavelength or small group of wavelengths basis to offset loses."(page 55, lines 24 to 30). The architecture of the photonic switch has been described, for example, at page 65, lines 18 to 32, and in Figure 12. It should be apparent to a person skilled in the art that this is a non-blocking switch capable of switching any input port to any output port.

Figures 8a, 9a and 9b of the present application, show the dramatic saving in complexity and cost of the metropolitan photonic network compared to that of Figures 2c, d, e, and f; by using photonic switch and switching the traffic in the optical domain.

The hub concentration node 16 of Kuykendall, on the other hand, multiplexes and demultiplexes the services for the end users. It is a cascaded holographic

multiplexing and de-multiplexing system. It should be apparent to a person skilled in the art that to Kuykendall's holographic concentration node is not a switch.

Therefore, Applicant submits that Kuykendall's hub concentration node is not equivalent to the photonic switch of the present invention. Applicant further submits, as discussed above, that Adams is directed to CWDM and is unrelated to the present invention.

Applicant further notes, since the Kuykendall's hub concentration node is a simple multiplexer/demultiplexer system, it does not teach or suggest, for example, the limitation of "a control plane coupled to the photonic switch and the core node for effecting end-to-end photonic connectivity" as claimed in the independent claim 23.

Applicant further notes that the dependent claims are inventive at least by virtue of their dependencies.

Applicant therefore respectfully requests reconsideration and withdrawal of the obviousness rejection.

In view of the above comments and amendments, and having dealt with all of the matters raised by the Examiner, early and favourable consideration of this application on its merits is respectfully requested.

Respectfully Submitted,

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